UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/720,587	05/15/2001	Christian Linneberg	2836-0115P	2479

2292	7590	07/02/2004

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EXAMINER
BOOKER, KELVIN E

ART UNIT	PAPER NUMBER
2121	10

DATE MAILED: 07/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

		Application No.		Applicant(s)	
Office Action Summary		09/720,587		LINNEBERG ET AL.	
		Examiner		**Art Unit**	
		Kelvin E Booker		2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 May 2001*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-102* is/are pending in the application.

    4a) Of the above claim(s) *1-42* is/are withdrawn from consideration.

5)☒ Claim(s) *82-102* is/are allowed.

6)☒ Claim(s) *43-81* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☒ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date <u>5,9</u>.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☒ Other: *Detailed Office Action*.

DETAILED ACTION

Specification

1. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b).

An abstract on a separate sheet is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 43-101** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding **claims 43 and 83**, the *"and/or"* conjunction renders the claims indefinite because it is unclear whether the limitation following the phrase is part of the claimed invention. As noted in the above mentioned claims, one or more output score functions are determined [e.g., step 'A'] *and* one or more decision rules are determined [e.g., step 'B'], and used in conjunction for establishing a winning class. However, contrary to the processing of steps 'A' and 'B' as disclosed earlier in the claim language, the determination process is based upon step 'A' *or* step 'B', *or* steps 'A' and 'B', whereby introducing a disjunction in the steps deemed necessary for training the system.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. **Claims 43-82** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. **Claims 43-82** are directed at a method for training a classification system without disclosing any computer implemented processing. Abstract ideas (see Warmerdam, 33 F.3d at 1360, 31 USPQ2d at 1759) or the mere manipulation of abstract ideas (see Schrader, 22 F.3d at 292-93, 30 USPQ2d at 1457-58) are not patentable.

As disclosed, independent **claim 43** focuses on nonfunctional descriptive material, which is inclusive of the mere arrangement of data without engaging functionality when employed as a computer component.

Allowable Subject Matter

6. **Claims 83-101** would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

7. **Claim 102** is allowed.

8. The following is an examiner's statement of reasons for allowance:

the cited prior art, either singly or in combination, fails to anticipate or render obvious a system for training a classification system respective of the limitations disclosed in **claim 102**,

whereby N-tuple or look up tables (LUTs) are used to define rows and columns which

correspond to classes and elements of input data samples, wherein one or more output scores are

determined per class respective of the generation of column vector cell values, and one or more

decision rules are generated and used in conjunction with output scores to determine winning

classes.

Conclusion

9.   The following prior art made of record and not relied upon, is considered pertinent to

applicant's disclosure:

   A. Agrafiotis et al., U.S. Patent No. 6,571,227;

   B. Feleppa et al., U.S. Patent No. 6,238,342;

   C. Werbos, U.S. Patent No. 6,169,981;

   D. Mozer et al., U.S. Patent No. 6,021,387;

   E. Kosaka, U.S. Patent No. 5,893,058;

   F. Mozer et al., U.S. Patent No. 5,790,754; and

   G. Jorgensen et al., U.S. Patent No. 6,393,413.

   H. Jorgensen et al., "Theoretical Analysis and Improved Decision Criteria for the n-Tuple

Classifier";

   I. Jorgensen et al., "Boosting the Performance of Weightless Neural Networks by Using a

Post-Processing Transformation of the Output Scores";

   J. Simoes et al., "The Adaptive Weight Using RAM";

K. Lucas et al., "Recognition of Chain-Coded Handwritten Character Images With Scanning n-Tuple Method";

L. Jung et al., "Joint Feature and Classifier Design for OCR";

M. Allinson et al., "Neurons, N-Tuples and Faces";

N. Lucas et al., "Statistical Syntactic Methods for High-Performance OCR";

O. Lucas, S., "Rapid Content-Based Retrieval from Document Image Databases";

P. Bradshaw et al., "Improving the Generalisation of the N-Tuple Classifier Using the Effective VC Dimension";

Q. Lucas, S., "Can Scanning N-Tuple Classifiers be Improved by Pre-transforming Training Data?";

R. Lucas, S., "Continuous N-Tuple Classifier and Its Application to Face Recognition";

S. Jorgensen et al., "Nonlinear Noise Filtering and Texture Recognition by an Optoelectronic Neural Network That Implements a Mean Field Annealing Algorithm";

T. Jorgensen, T., "A RAM-based Neural Net with Inhibitory Weights and its Application to Recognising Handwritten Digits";

U. Jung et al., "N-Tuple Features for OCR Revisited";

V. Allinson et al., "A Principled Approach to N-Tuple Recognition Systems";

W. Linneberg et al., "Towards Semen Quality Assessment Using Neural Networks";

X. Linneberg et al., "Discretization Methods for Encoding of Continuous Input Variables for Boolean Neural Networks";

Y. Kolcz et al., "Application for the CMAC Input Encoding Scheme in the N-Tuple Approximation

Z. Network"; Bishop et al., "Auto-Associative Memory Using N-Tuple

Techniques";

AA. Rohwer, R., "Two Bayesian Treatments of the N-Tuple Recognition Method";

BB. Ouslim et al., "P Pattern Recognition Based on a Probablistic RAM Net Using N-

Tuple Input Mapping";

CC. Guoqing et al., "A Novel Adaptive Pattern Recognition Model with Sparse

Associative Memory Networks";

DD. Williams et al., "Hardware Implementation of RAM-Based Neural Networks for

Tomographic Data Processing";

EE. Austin, J., "A Review of RAM Based Neural Networks";

10. An inquiry concerning this communication or earlier communications from the examiner

should be directed to Kelvin Booker whose telephone number is (703) 308-4088. The examiner

can normally be reached on Monday-Friday from 7:00 AM-5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Anthony Knight, can be reached on (703) 308-3179. The fax number for the

organization where this application or proceeding is assigned is (703) 872-9306.

An inquiry of a general nature or relating to the status of this application proceeding

should be directed to the receptionist whose telephone number is (703) 305-3900.

Anthony Knight
Supervisory Patent Examiner
Group 3600

K.E.B.

Art Unit 2121

June 22, 2004